

The life history of prostate adenocarcinoma

Lo C¹, Liu H¹, Tran D¹, Zhuang L¹ and Myint E¹

1.Histopathology Department, Douglass Hanly Moir Pathology, 14 Giffnock Avenue, Macquarie Park NSW 2113

Introduction

Prostate adenocarcinoma is the most prevalent cancer for men in Australia (excluding skin cancers). Hence, early detection and diagnosis are essential for effective treatment with serology and the aid of the latest immunohistochemistry (IHC) stain NKX3.1, in conjunction with classic PSMA and AMACR+ 34 β E12 +p63 cocktail.

Patient

Symptoms

- Unusual urinary problems (pain, frequency, blood)
- Unexplained weight loss

Doctors

GPs, urologists or oncologists

Investigations

Blood test
(high PSA
levels)

Direct rectal
examination
(may be firm)

MRI
(PIRAD
score 4 or 5)

Biopsy (Adenocarcinoma) ISUP/WHO Grade group & Gleason Score:

- Group 1 = Score < 6 (low)
- Group 2 = Score 3+4=7 (intermediate)
- Group 3 = Score 4+3=7 (intermediate)
- Group 4 = Score 4+4=8 (high)
- Group 5 = Score 9 & 10 (aggressive)

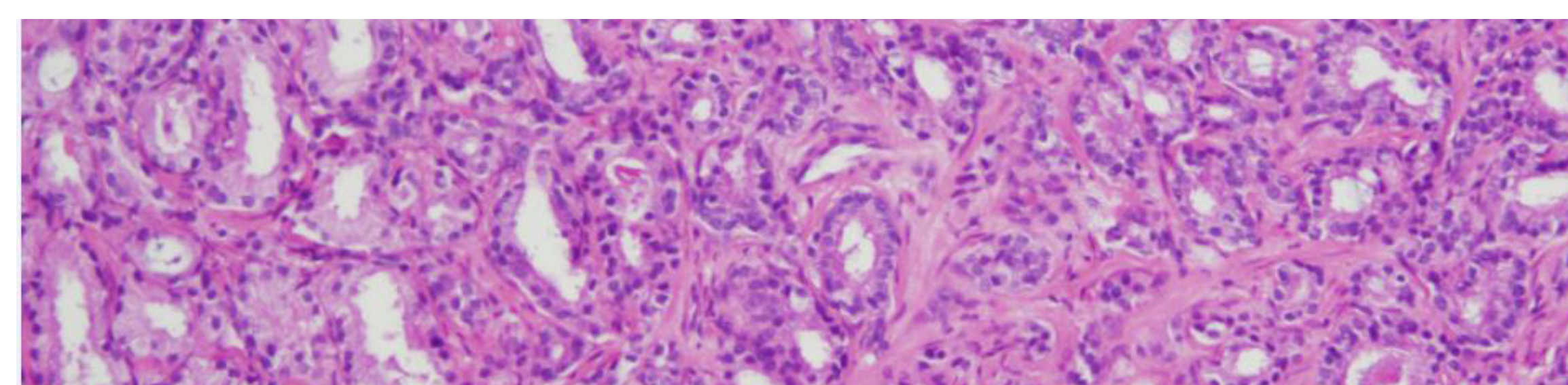


Figure 1. Core biopsy, adenocarcinoma. HE stain

Diagnosis confirmed by IHC stain

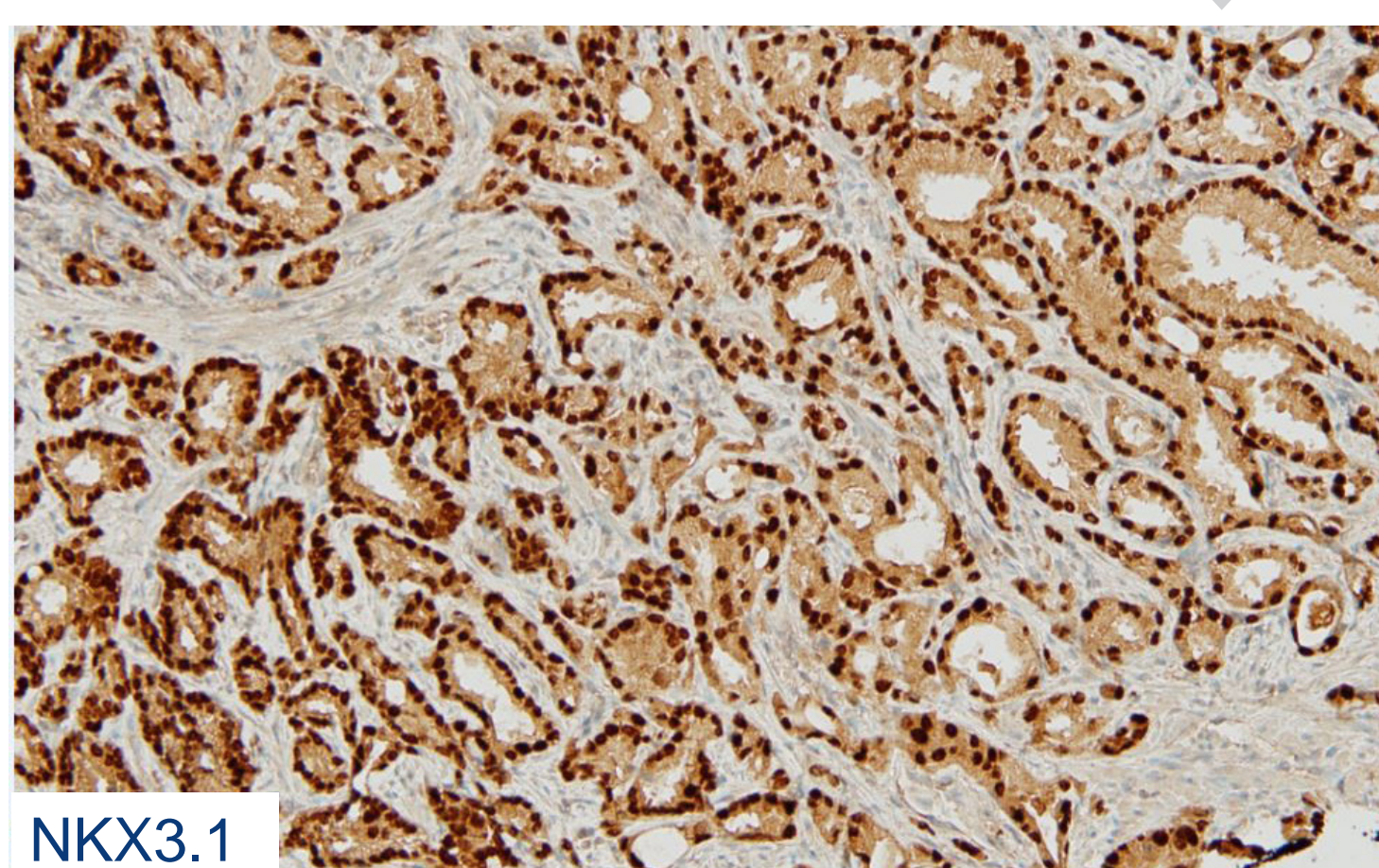


Figure 2. Tumour shows nuclear(+)¹

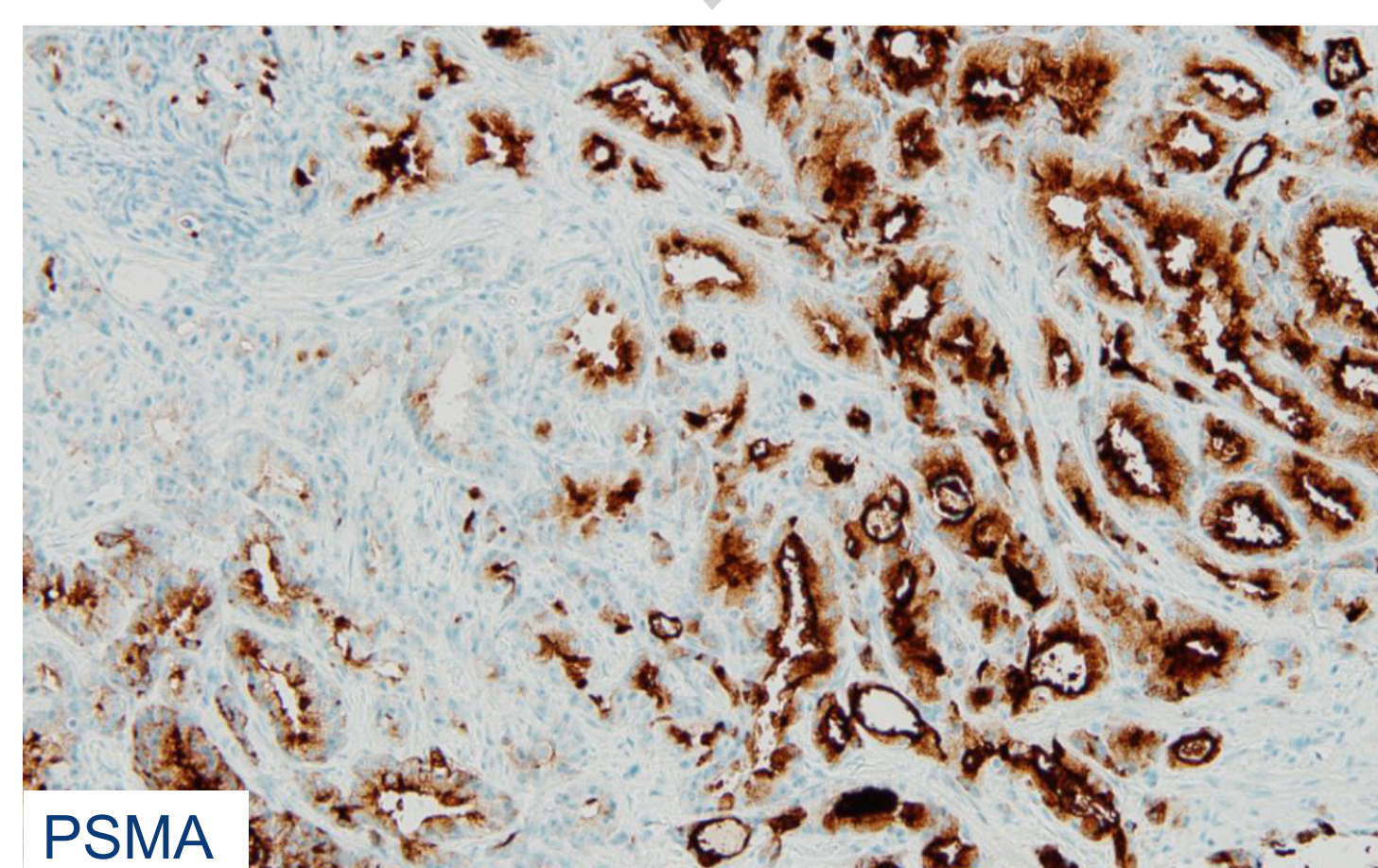


Figure 3. Tumour shows cytoplasmic/membrane(+)²

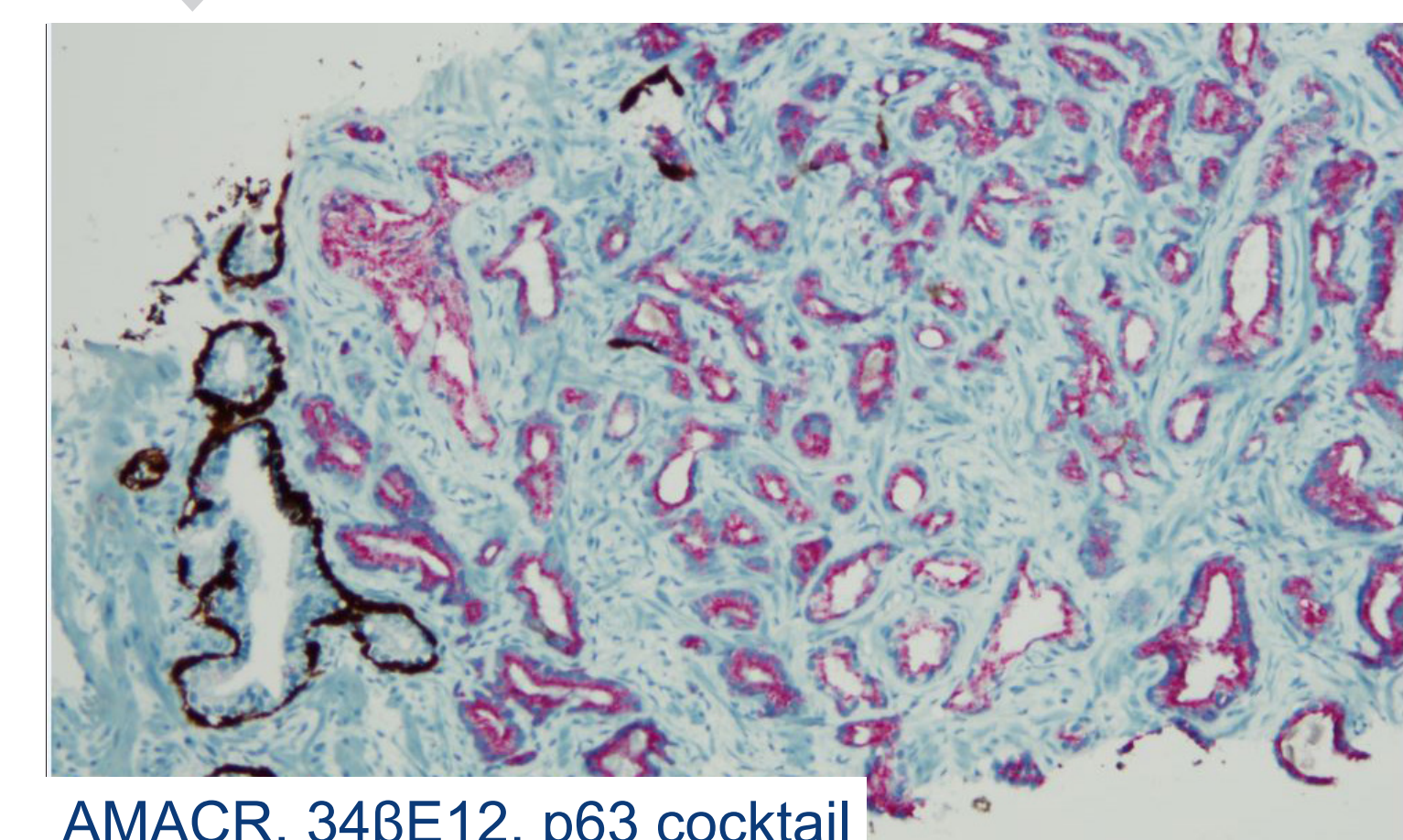


Figure 4. Tumour shows (+) for AMACR(red) and (-) for p63 & 34 β E12 (brown); non cancer glands show (-) for AMACR and (+) for p63 & 34 β E12³

Treatments

Androgen
deprivation
therapy
(hormone
therapy)

Chemotherapy

External
beam
radiotherapy

Brachytherapy

Surgery

- Radical prostatectomy (early prostate cancer)
- Removal of lymph nodes (aggressive)

Conclusion

Detection and diagnosis of prostate carcinoma is a multidiscipline teamwork and IHC stain plays one of the crucial roles. NKX3.1 and PSMA are specific for confirming prostate primary, and AMACR, 34 β E12 and p63 are useful diagnostic markers.



Figure 5. Radical prostate



Figure 6. Slices of prostate

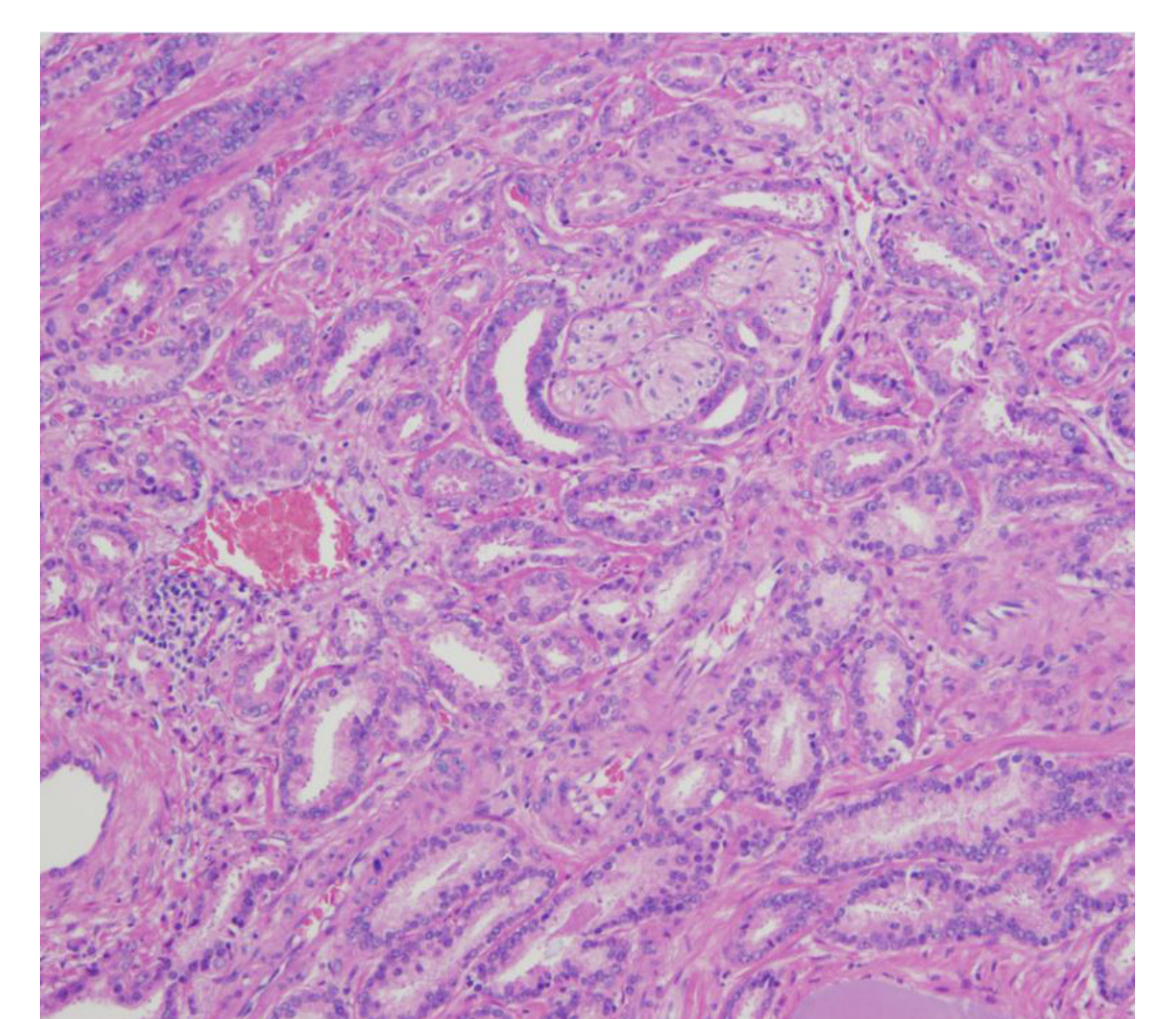


Figure 7. Radical prostate, Gleason Score 3+3=6, HEstain

References

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3. Jiang Z, Li C, Fischer A, et al. Using an AMACR (P504S)/34 β E12/p63 cocktail for the detection of small focal prostate carcinoma in needle biopsy specimens. *Am J Clin Pathol*. 2005;123(2): pp.231-236.